

BEFORE
THE PUBLIC SERVICE COMMISSION
OF SOUTH CAROLINA
DOCKET NO. 2013-168-WS

IN RE: Petition of the Office of Regulatory)
Staff to Request an Order Requiring)
Tega Cay Water Service Water Service, Inc.)
to Provide Adequate and Proper Service)

PREFILED DIRECT
TESTIMONY OF
RICHARD J. DURHAM

1 **Q. Please state your name, present position, and business address.**

2 My name is Richard J. Durham. I am the Regional Vice President of Operations for
3 Utilities, Inc. (“UI”) and its subsidiaries including Tega Cay Water Service, Inc. (“TCWS”). My
4 business address is 200 Weathersfield Ave., Altamonte Springs, Florida 32714.

5
6 **Q. What are your duties in your current position?**

7 In my current position, I am responsible for directing the safe, efficient and economical
8 operation of the Southeast, South, and West Regions assets. My duties and responsibilities
9 include the following:

- 10 • Lead operations team to be in compliance with all applicable local, state and
11 federal regulations,
- 12 • Economic performance of operating subsidiaries within the West, South, and
13 Southeast Regions,
- 14 • Maintain assets in good operating condition,
- 15 • Developing capital plan to meet customer growth and adherence to that plan,
- 16 • Margin review analysis to ensure efficient operations,
- 17 • Stewardship of legal issues and cases,
- 18 • Foster and ensure safe work environment,
- 19 • New business development,
- 20 • Manage relationships with the community,
- 21 • Manage and provide leadership for staff,
- 22 • Provide information to national headquarters and manage management’s
23 expectations, and
- 24 • Stay abreast of local environment and upcoming regulations.

Q. What is your educational and professional background?

I have over 30 years of experience in the utility industry. Twelve years of my career has been devoted to the regulatory field and approximately twenty years working in the private sector in utility management and operations. As a regulator, I worked for the North Carolina Division of Environmental Health (“DEH”). I was the former State Drinking Water Administrator, Section Chief of the Public Water Supply Section of DEH, responsible for the implementation and enforcement of both the state and federal drinking water regulations in North Carolina. I also worked for 6 years as a Utilities Engineer with the North Carolina Utilities Commission-Public Staff representing the using and consuming public in water, wastewater, and electric proceedings before the Commission. I have a Bachelor’s Degree in Civil Engineering from North Carolina State University and I am registered in North Carolina as a Professional Engineer. I am currently the Regional Vice President of Operations for UI’s Southeast, South, and West regions consisting of 6 states and I have been with the Company for approximately 7 years.

Q. What is the purpose of your testimony?

The purpose of my testimony is to respond to the Petition for Rule to Show Cause brought by the Office of Regulatory Staff on May 8, 2013, and assure the Commission that Tega Cay Water Service continues to provide its customers with adequate and proper service. I will explain the causes of the recent sanitary sewer overflows (“SSOs”) in Tega Cay and the company’s response to their occurrence, in the overall context of the company’s efforts to improve the system’s operations over the past several years.

1 **Q. Please describe Tega Cay Water Service’s operations.**

2 The Tega Cay community was developed in the early 1970s as a bedroom community
3 near Charlotte, North Carolina. In 1982, the original developer filed for bankruptcy. The
4 subdivision’s original water and sewer provider also experienced financial difficulties, and UI
5 acquired its assets in 1991, established Tega Cay Water Service, Inc., and began providing water
6 and sewer service to the residents of the community. The system serves the oldest part of the
7 Tega Cay community situated on the shores of Lake Wylie, in York County, South Carolina.
8 The newer portions of the community are served by the City of Tega Cay, which was
9 incorporated in 1982 following the developer’s bankruptcy filing.

10
11 **Q. Please describe Tega Cay Water Service’s Wastewater System.**

12 As of April 30, 2013, the company provided wastewater service to 1,765 premises. Two
13 commercial properties that receive water distribution service from Tega Cay Water Service
14 utilize septic tanks and there are 16 irrigation meters in place.

15 Tega Cay Water Service’s wastewater collection system contains approximately 50 miles
16 of gravity sewer mains and force mains, an estimated 20 miles of service lines, 19 lift stations
17 and appurtenances, and approximately 1,100 manholes. Tega Cay Water Service owns and
18 operates two wastewater treatment plants, wastewater treatment plant (“WWTP”) #2 and WWTP
19 #3, which discharge into Lake Wylie. A third wastewater treatment plant, WWTP #4, is in
20 standby mode.

21 Due to the collection system’s age, pipe material, number of lift stations, the location of
22 the collection lines in close proximity to the lake shoreline, and the hilly terrain, the design of the

1 system poses several operational and maintenance challenges. There is not only a high potential
2 of overflows occurring, but significant potential for an overflow to reach Lake Wylie.

3
4 **Q. Tega Cay Water Service's Corrective Action Plan was discussed with the**
5 **Commission during the last rate case and was mentioned in ORS witness Willie Morgan's**
6 **direct testimony in the current proceedings. Please provide a brief recap of the Corrective**
7 **Action Plan and how it was developed.**

8 The Corrective Action Plan ("CAP") was developed in 2011 to reduce the incidence of
9 SSOs in the Tega Cay system. The CAP, which was implemented pursuant to a Consent Order
10 (No. 11-004W) with the Department of Health and Environmental Control ("DHEC"), was
11 developed by TCWS and the W.K. Dickson engineering firm. The CAP provided a plan of
12 maintenance practices and capital improvements designed to curtail the incidence of SSOs in the
13 Tega Cay system, particularly those that resulted in the release of untreated wastewater into Lake
14 Wylie. The CAP was approved by DHEC and has been implemented and updated periodically in
15 consultation with that agency. For instance, with the recent installation of flow monitoring
16 equipment capable of measuring flow data during rain events, we are able to obtain valuable data
17 for specific sections of the system indicating where cost effective improvements can be added to
18 the CAP and executed.

19
20 **Q. Please summarize the work done pursuant to the CAP through the year 2012.**

21 The work performed included improvements to the treatment process for the removal of
22 phosphorus at wastewater treatment plants #2 and #3 to meet new limits established in the
23 permit. There was also an assessment of the lift stations, gravity mains and force mains that led

1 to upgrades to the lift stations and significant improvements (including the removal of roots and
2 grease) to the gravity mains and manholes that enhanced their ability to transmit waste through
3 the collection system and reduced the incidence of raw sewage overflows occurring in the
4 collection system. Elements of the CAP were prioritized so that those portions of the collection
5 system that had a history of frequent SSOs were addressed first in order to reduce SSO activity
6 as rapidly as possible. For instance, Lift Station #2 and Lift Station #3 were totally revamped.
7 Each station was equipped with more energy efficient submersible pumps to provide more
8 reliable performance and reduce the need for frequent repairs. Each control panel was also
9 replaced and charcoal filters installed on the vent pipe to minimize odors coming from the wet
10 wells. The newly installed pumps provide an increase in pumping capacity over the original
11 pumps, which allows the two pump stations to keep up with peak flow conditions generated by
12 the customers in their vicinity.

13
14 **Q. Was the initial work done pursuant to the CAP successful in addressing the SSO**
15 **issue?**

16 Yes, to a point. The improvements resulted in a drastic reduction in the frequency,
17 duration, and volume of wastewater associated with SSOs in the collection system. There were a
18 total of nine SSOs from July 2011 through December 31, 2012. The total volume of the spills
19 was less than 1,500 gallons (in six cases, less than 50 gallons), with no wastewater entering any
20 surface water bodies including Lake Wylie. In comparison, 22 SSOs occurred during the first six
21 months of 2011. However, in 2013, TCWS began to experience new problems. Three rain
22 events resulted in high flows reaching the treatment plants within a short duration of time. A
23 complete log of the SSOs is attached as Exhibit RJD-1 to this testimony.

1 **Q. What caused the recurrence of SSOs in 2013?**

2 As Mr. Morgan noted in his direct testimony, the occurrence and location of overflows
3 vary. Moreover each overflow can be caused by a number of different drivers, or combination of
4 multiple factors. In 2013 there were three specific spill occurrences mentioned by Mr. Morgan
5 that were significant and distinguishable in terms of quantity, duration, and location than SSOs
6 occurring in prior years. These were the rain related SSOs which occurred January, April, and
7 May.

8 Having an engineering background, I tend to speak in terms of “contributing factors”
9 when referring to an overflow incident. While I have referred to these as “rain related”
10 overflows, each associated rain event was only one of several contributing factors to these
11 overflows. Based on our assessment, other contributing factors included, improved flow within
12 the collection system, upgraded lift station pumping efficiency, inflow, lake levels,
13 supersaturated ground (near lake shores and failing city owned storm drainage systems),
14 infiltration, and at least one incident of vandalism. Prior to 2013 many of these factors were not
15 significant contributing drivers in the number of incidences of SSOs. During the six year period
16 prior to the collection system improvements made in 2011 and 2012, the majority of the
17 overflows can be attributed to blockages within the gravity collection system. The common
18 cause of these blockages was debris and root intrusion.

19
20 **Q. Were you able to specifically identify sources of inflow & infiltration and account**
21 **for the quantity of the overflow volume that occurred?**

22 Yes. Based on our assessment following the May 6th overflows we were able to identify
23 a significant amount of inflow into our collection system from an open manhole and infiltration

1 (“I&I”) from multiple areas in the collection system located in high run-off drainage areas. The
2 total I&I resulting from this storm event is estimated at 360,000 gallons of which we believe:
3 100,000 gallons entered the system from an open manhole lid (MH 70), approximately 140,000
4 gallons of inflow through vented and/or grated manhole lids, approximately 30,000 gallons
5 entered through a broken lateral taking in water from a nearby deteriorated city owned storm
6 drainage pipe, and approximately 90,000 gallons from locations of infiltration entering the
7 system through cracked and broken mains that are now being replaced or re-lined to extend the
8 life of the facilities. These estimates are tabulated and graphically shown in the information that
9 was communicated to the customers. (Exhibit RJD-2)

10
11 **Q. Please summarize the work that has been performed to date to address the**
12 **overflows that occurred in 2013.**

13 After the May 6th SSO occurred, UI brought in additional resources. On May 8, 2013, a
14 “SWAT” team of UI workers from South Carolina, North Carolina, Georgia, Louisiana, and
15 Florida came to Tega Cay to work on the system. The UI team consisting of over 20 persons, its
16 consulting engineer, and various contract camera crews and smoke testing crews canvassed the
17 collection systems of WWTP #2 and #3 looking for areas of inflow & infiltration. The smoke
18 and dye testing assisted in specifically locating where and what type of improvements were
19 needed. Closed Circuit Television (CCTV) cameras were extensively used in 8 miles of sewer
20 mains to aid in the rehabilitation of the collection system. In addition, a diving crew was hired
21 to inspect the effluent pipe extending into Lake Wylie to insure efficient flow exiting the plant.

22 After our assessment, on May 8th we commenced work to improve the system as follows:

- 23 ○ Completed numerous excavations to improve service connections by creating
24 water tight seals;

- Installed 10 locking MH covers;
- Installed approximately 298 inflow dishes in MH's;
- Installed 90 out of 125 MH risers;
- Installed approximately 3,785 Linear Feet of Cured-in-Place Pipe (CIPP) liner;
- Divers inspected over 7,000 Linear Feet of underwater effluent pipe between the WWTP's and the discharge points in Lake Wylie;
- Installed four logging flow monitors in critical MH's. This will give us real time information of flow coming into the WWTP. This is a very important step in locating any other unusual flows caused by inflow and rain-induced infiltration.

Photographs of some of the work are attached as Exhibit RJD-3.

Q. Has the response to the recent SSOs been successful?

Yes. There have not been any major SSOs since May 6, 2013, in spite of some heavy rainfall events, including a tropical storm. Of the three incidents that occurred, two were under 10 gallons and related to cleaning, and the other involved less than 200 gallons. None of the spills involved a pump failure, but were all caused by roots in the lines, which is a more systemic problem to the system and cannot be addressed as quickly.

Q. Does the occurrence of SSOs in 2013 mean that the work previously done pursuant to the CAP was not successful or properly done?

Not at all. As I previously stated the types of overflows which occurred prior to 2013 had different contributing factors. The work previously done under the CAP addressed the deficiencies in the collection system associated with blockages caused by grease and root intrusion, and focused on needed lift stations upgrades. Eliminating these deficiencies needed to be done. This work improved the collection system's ability to move wastewater quickly to the treatment plant without the occurrence of overflows. However, the improvements made prior to

1 2013 also reduced the system's flow retention ability. This factor when combined with the
2 increased levels of inflow and infiltration results in a higher flow arriving at the treatment facility
3 over a shorter duration of time.
4

5 **Q. Can TCWS guarantee no more overflows will occur from the Tega Cay system?**

6 While our ultimate goal is the elimination of all preventable SSOs, no utility can
7 guarantee the end of all spills and overflows, particularly from systems designed like the one
8 serving Tega Cay. TCWS is committed to providing efficient service to its customers and
9 protecting the environment from wastewater overflows and has dedicated the necessary
10 resources to upgrade the system and make it as reliable as feasibly possible. TCWS has also
11 acted proactively and responsively to emergencies relating an overflow or the threat of an
12 overflow condition. In fact, in several meetings held with DHEC to update them on the status of
13 the system improvements, Department staff expressed their appreciation of our response to 2013
14 overflows in general and specifically to our willingness to provide them the data we are
15 collecting in the process. We will continue to work in cooperation with DHEC, the
16 Commission, the ORS, and the community to reduce the risk and potential of overflows at Tega
17 Cay. However, it would be prohibitively costly to protect the community and the lake from all
18 sources of service disruption potentially resulting in a spill caused for example by severe
19 weather, extreme flooding, or equipment failure,
20

21 **Q. Has TCWS kept the customers up to date on its efforts?**

22 Tom Oakley, Chief of Staff for the CEO of Utilities, Inc. has taken on the job of
23 communicating with customers about work done to the system. Tom has provided regular

updates by email to our customers. (*see* Exhibit RJD-2) He has also corresponded with many customers on an individual basis to address their concerns. Both Tom and I have also repeatedly offered to meet with representatives of the group known as the Tega Cay Citizens Water Advisory Council, which has been vocal with the local media and regulatory agencies. On June 11, 2013, I went to see Ms. Linda Stevenson, who is the most frequent spokesperson for the Tega Cay Water Citizens Advisory Council, at her home in order to introduce myself and speak with her about the system improvements underway. Ms. Stevenson declined our invitations to meet with the Advisory Council. However, that afternoon Ms. Stevenson and another resident did accompany me on a visit to WWTP #2 where we had a brief discussion about the maintenance activities she had witnessed on site, we talked about the various treatment components of the plant, and we demonstrated the degree of effort needed to open a manhole lid. We have also offered to meet with Mayor Shepard of the City of Tega Cay, and have kept him and his staff up to date on our efforts.

Q. What is TCWS's relationship with City of Tega Cay?

TCWS's system is located in the corporate limits of the City of Tega Cay, so our customers are also city residents. Tega Cay Water Service purchases bulk water from York County, which in turn purchases the water from the City of Rock Hill. TCWS and the City of Tega Cay's wastewater operations operate independently from one another.

1 **Q. Would interconnecting the TCWS and City of Tega Cay wastewater collection**
2 **systems resolve or alleviate the SSO issue?**

3 No. Interconnection with the City's system would require retiring TCWS's treatment
4 plants (which were recently upgraded) from operation. However, the system of clay pipes,
5 which gives rise to many of its problems, would remain in place. Therefore, the potential for
6 spills, and the maintenance requirements of the TCWS system would largely remain in place.
7 Also, TCWS's customers would experience increased costs as the result of an interconnection.
8 The expense of establishing the interconnection would necessarily be borne by the customers,
9 who would also have to pay the City for wastewater treatment.

10
11 **Q. Do you have any recommendations for the Commission in this proceeding?**

12 TCWS will continue to carry out the CAP and comply with all Commission and DHEC
13 regulations. We are committed to providing our customers with quality service and intend to
14 resolve the issues experienced during the past several months. TCWS and I will keep the
15 Commission apprised of our efforts by reports or hearings as it deems appropriate.

EXHIBIT RJD – 1

(SSO Log)

Sanitary Sewer Overflows

Updated 6/18/13

Year/Date	Manhole # or location	Amount (gallons)	Cause of SSO	Reported to SC DHEC	Service interruption	Description
1/5/2011	MH B-38	<50	roots and grease	Yes	No	Did not reach lake or stream
1/14/2011	MH F-42	<1000	roots or grease	Yes	No	Flowed into small stream going to lake
1/19/2011	MH I-70	<100	roots and grease	Yes	No	Did not reach lake or stream
1/24/2011	MH D-43	unknown	heavy rains	Yes	No	Unknown
2/9/2011	MH A-56	<100	blockage in main	Yes	No	Did not reach lake or stream
2/15/2011	MH I-28	<200	blockage	Yes	No	Flow entered the lake
2/24/2011	MH C-29	1000	roots	Yes	No	Flow entered a small stream
2/28/2011	2092 Diamond Head	10	roots in lateral	Yes	Yes, 3 hours	Back up in customers basement
3/1/2011	WWTP #2	<100	electrical problem and high flows	Yes	No	Did not reach lake or stream
3/7/2011	3122 Point Clear	<50	roots and grease	Yes	No	Did not reach lake or stream
3/14/2011	4100 Marquesas	10-20	roots and grease	Yes	No	Did not reach lake or stream
4/6/2011	behind 2600 Marquesas	25	roots and grease in lateral	Yes	No	Did not reach lake or stream
4/9/2011	16160 Tana Tea	5	roots and grease	Yes	Yes, 3 hours	Back up in customers basement
4/16/2011	9104 Pitcairn Dr	10	roots and grease	No	Yes, 3 hours	Blockage in main caused sewer to back up. Sewer leaked around base of customers toilet and damaged ceiling tiles in basement
4/18/2011	WWTP #2	200	drain line not capped	Yes	No	Sludge spill at WWTP. Did not reach lake or stream.
4/22/2011	3024 Point Clear	25	roots and grease in lateral	Yes	Yes, 4 hours	Back up in customers basement
5/18/2011	MH 31-32, 4159 Koala Circle	<500	roots and grease	Yes	No	Did not reach lake or stream
5/23/2011	1062 Woodlake Section 1	<50	blockage in main	Yes	Yes, 20 hours	Blockage at tap caused back up in customers basement
5/24/2011	3031 Point Clear	100	blockage in TCWS portion of lateral	Yes	Yes, 2 days	Customer had to install a cleanout before we could find the cause of the blockage
6/19/2011	MH H-27 behind 6010 Lanai Lane	<500	grease blockage	Yes	No	Did not reach lake or stream
6/23/2011	MH H-25 6013 Lania Lane	<50	root ball in manhole 25 blocking main	Yes	No	Did not reach lake or stream
6/27/2011	11096 Pheasant Run	<500	contractor was jetting main when SSO occurred at	Yes	No	Did not reach lake or stream
7/25/2011	3058 Point Clear	25 gals of sand	contractor placed sand from manhole on ground to	Yes	No	Did not reach lake or stream
8/20/2011	MH H-35	<200	blockage in main	Yes	No	Did not reach lake or stream
12/8/2011	27017A Windjammer Dr.	1/4	water splashed out of toilet on wall as main was broken	Yes	No	Line holding water being cleaned by jet truck caused a small surge to go into customers plumbing and splash out of toilet
12/13/2011	2157 Marquesas Ave	10	root ball at tap. SSO came out of cleanout	Yes	No	Did not reach lake or stream
12/22/2011	11057 Holiday Cove	<500	Customer's lateral was broken at cleanout by faller	Yes	No	Did not reach lake or stream
2/21/2012	2064 Marquesas Ave.	30	Blockage in sewer main between MH's B-26A and B-26B	Yes	Yes, 3 hours	Back up in customers basement

3/29/2012	MH C-31 near 5041 Suvarrow	<500	Deflated basketball lodged in sewer main, vandalis	Yes	No	Did not reach lake or stream
5/2/2012	MH A-197	3	blockage in sewer main	Yes	No	Did not reach lake or stream
9/26/2012	LS 19 valve pit	5	gasket leaked at flange fitting in valve pit , did not	Yes	No	Did not reach lake or stream
12/8/2012	2028 Manilla Bay	10	Lateral on our side separated and settled	Yes	Yes, 4 hours	did not reach lake or stream, affected areas: carpet in hallway and wood under kitchen sink
12/10/2012	5080 Marianna Ln	<50	4" Lateral blocked with roots and grease	Yes	yes, 3.5 hours	Did not reach lake or stream, off golf course fairway
1/10/2013	1062 Woodlake Ln	100	4" lateral blocked with roots and a toy dolphin	Yes	yes, 3 hours	did not reach lake or stream, will replace section of lateral
1/10/2013	4142 Marquesas Ave	300	between MH E18 & MH E19	Yes	No	did not reach lake or stream
1/12/2013	4060 Point Clear	10	roots and grease in lateral	Yes	2 hours	toilet overflowed
1/18/2013	1007 Palmyra	3,000	Heavy Rains	Yes	No	manhole a-157 over flowed into cove
1/18/2013	WWTP #2	100,000	Heavy Rains	Yes	No	partially treated wastewater effluent over flowed from the UV box
1/29/2013	4117 Marquesas	50	blockage	Yes	2 hours	did not reach lake or stream
2/6/2013	WWTP#3	300	Issue with float switches in LS	Yes	No	did not reach lake or stream, SSO was treated wastewater
2/18/2013	16031 Samoa Ct	<60	blockage in lateral	Yes	2 hours	down stairs toilet overflowed
2/19/2013	MH #E-14 near WWTP#2	<300	solids, piece of lumber, piece of tarp	Yes	No	did not reach lake or stream
2/26/2013	UV Box at WWTP #2	<2000	Inflow form 1.1 " rainfall	Yes	No	partially treated wastewater overflowed at UV disinfection box. Some of the flow made it to storm drains going to the lake. No swimming signs were posted and bacterial samples collected.
3/10/2013	1108 Palmyra	<20	broken clay lateral allow roots to grow into line	Yes	2 hours	back up into home. Cleaned up by resident
3/10/2013	12041Spinnaker Dr Mnahole k144	<2000	section of log placed in main. Vandalism	Yes	No	Flowed into cove of Lake Wylie. Police report filed with City of Tega Cay.
3/20/2013	4056 Point Clear	100	Roots at tap	Yes	4 hours	back up in bathroom and under home when cleanout was opened
3/21/2013	5052 Suvarrow	<5	grease and toilet paper	Yes	1 hour	toilet over flowed on bathroom floor
3/27/2013	2077 Marquesas	<500	Roots where lateral tapped into 6"main	Yes	2 hours	Did not reach lake. Spilled out of open 2" cleanout under house. Common 6" main serving 3 houses with no visible cleanouts or manholes. Line has been dug up in several locations and roots removed, damaged line replaced and proper cleanouts installed.
4/29/2013	UV Box at WWTP #2	100,000	Inflow from 3.5 " rainfall	Yes	No	Partially treated wastewater overflowed at UV disinfection box. No swimming signs were posted and bacterial samples collected.
5/6/2013	UV Box at WWTP #2	50,000	Inflow from 2" rainfall	Yes	No	Partially treated wastewater overflowed at UV disinfection box. No swimming signs were posted and bacterial samples collected.
5/6/2013	UV Box at WWTP #3	<500	Inflow from 2" rainfall	Yes	No	Partially treated wastewater effluent over flowed from the UV box. Did not reach the lake.

5/6/2013	LS#3	<100	Inflow from 2" rainfall	Yes	No	Raw wastewater overflowed from the lift station some of which reached the lake
5/6/2013	Man Hole B-36	<100	Inflow from 2" rainfall	Yes	No	Raw wastewater overflowed from the man hole some of which reached the lake
5/6/2013	Man Hole B-51	<500	Inflow from 2" rainfall	Yes	No	Raw wastewater overflowed from the man hole some of which reached the lake
5/13/2013	2122 Bon Villa Way	<200	Roots in main and lateral	Yes	no	Overflow into basement due to no cleanout cap on basement cleanout
5/17/2013	3047 Point Clear Drive	<10	Roots in 6" main	Yes	No	Overflow was out of cleanout on 6" main, did not reach a body of water
6/14/2013	5104 Windward Drive	<10	Roots in lateral	Yes	No	Did not reach body of water confined to area adjacent to cleanout

EXHIBIT RJD – 2
(Customer Communications)

From: Tom G. Oakley
Sent: Tuesday, May 07, 2013 1:54 PM
ToCc: 'georgesheppard@comporium.net'; 'Hipp, Dawn'; 'wmorgan@regstaff.sc.gov'; 'Jocelyn.Boyd@psc.sc.gov'; 'CFunderburk@tegacaysc.gov'
Subject: Tega Cay Water Service

Dear Tega Cay Water Service Customers,

My name is Tom Oakley and I am Chief of Staff for the CEO at Tega Cay Water Service. I am writing to you directly to let you know that we understand and share your concerns about the sewer overflows in our Tega Cay sewer system. We feel we have a responsibility to communicate directly with our customers, hence this letter. If you are not interested in receiving information directly from us going forward, please simply hit "Reply" and put "Do Not Contact" in the subject line.

First and most importantly, I want to be clear, we are going to figure out why we continue to have sewer overflows during significant rain events despite two years of work on this issue. Indeed, the system has been "tightened" up significantly, yet the situation seems to be getting worse. We are committed to stopping all sewer overflows as soon as possible, whatever it takes. We can understand how frustrated you, as homeowners, must be and we are putting all hands on deck to figure this out ASAP. We share your frustration and are committed to resolving the problem as soon as possible.

Secondly, I would like to tell you what we have been doing about this situation over the last two years –

- We have invested over \$1mm improving lift stations and the collection system.
- We have smoke-tested the drainage basin of Plant #2 looking for sources of infiltration. Rainwater infiltration is a major cause of sewer system overflows as rainwater can overwhelm the system.
- We have run a camera inside the majority of the Plant #2 sewer system to look for sources of inflow.

Thirdly, while the problems are clearly associated with rain events, we need to identify how this happening. Here is what else we are doing --

- We have a team of resources from around the country that are en route to Tega Cay. This includes several experts on this type of problem as well as manpower to walk the system and continue to look for sources of infiltration.
- We are bringing in all available camera trucks in the area to look for infiltration.

- We are dye testing the collection system and will be approaching the City to dye test areas of the storm water system in close proximity to the wastewater system. A harmless dye is introduced at various locations throughout the community to identify possible sources of infiltration.
- We are reviewing all changes in the area that could have potentially affected the collection system. These include things such as changes to storm drains or storm collection systems in the area, underground utility work, French drains, and any other underground structure.
- We have assigned a senior resource to this issue. Rick Durham, Regional Vice President, has been directed to focus exclusively on South Carolina and oversee these efforts, specifically. Rick is a water industry veteran and his experience and judgment will help move things ahead with the team and he will be personally responsible for determining solutions. Rick's regulatory experience includes serving as an advocate representing the interests of customers in matters that came before the utility commissions elsewhere. His degree is in Civil Engineering which gives him a full understanding of hydraulics in utility systems. Rick met on Friday in Columbia with our consulting engineer and received a full briefing on the current status. Rick is in Tega Cay today with the engineers and has invited members of both the DHEC and ORS staffs to join him for site visits and further discussions.
- The CEO has asked for a daily briefing on the status of resolving this problem until all overflows have been eliminated.
- We are, in parallel, identifying what can be done at the plant itself as a stop gap measure.

Lastly, we are asking for your help. Identifying the source of the infiltration is urgent and essential to resolve the problem. I would ask that you forward me any information regarding potential scenarios/changes outlined above of which you may be aware.

We are putting every resource necessary to work on resolving the situation in Tega Cay and want you to know it is an urgent priority for us. Should you have any system problems, let me encourage you to contact our customer service phone line (1-800-272-1919) since that is the fastest way to get resolution. However, Rick (rjdurham@uiwater.com) and I are available to discuss any issues with you as well.

We appreciate your patience and look forward to closing this matter so that residents no longer need to be concerned and can enjoy your lovely community this summer.

Sincerely,

Tom Oakley
Chief of Staff
Office of the CEO

From: Tom G. Oakley
Sent: Wednesday, May 08, 2013 9:33 PM
To: Tom G. Oakley
Cc: 'georgesheppard@comporium.net'; 'Hipp, Dawn'; 'wmorgan@regstaff.sc.gov'; 'Jocelyn.Boyd@psc.sc.gov'; 'CFunderburk@tegacaysc.gov'
Subject: Update

Dear Tega Cay Customers,

As promised, I wanted to provide a quick update on the day's activities toward resolution of the SSO issues in your community.

If you were in and around the neighborhood today you no doubt saw our folks at work. We had 22 staff (including those brought in from out of state) in the field. In total they inspected over 400 manholes, walked approximately 15 miles of pipe and evaluated the entire collection system for wastewater treatment plant #2. Additionally, we had four video inspection contractors, smoke and dye testing contractors and our consulting engineer on site throughout the day.

A large amount of data has been generated by this work and it will be evaluated tonight and into tomorrow.

A similar plan is scheduled throughout other parts of the system for tomorrow and the experts guiding this work are confident that we will find the cause(s) of the SSOs and will be in position to correct those quickly once identified.

Some questions that have been raised are 'why hasn't this work been done before' and 'after two years of no problems, why now'? Legitimate questions to be sure and certainly the second question is one we have been asking internally. We have, in fact, done much of this inspection work before and the collection system was found to be vastly improved as a result of the capital spending done in 2011.

Then, why are we doing it again and has something changed?

As all of you are painfully aware, it has been a particularly wet period throughout the state. Lake Wylie and other lakes, both upstream and down, have been running at very high levels for an extended period. Duke Energy has announced dam releases which will further complicate the situation and today they have characterized the situation in the following way: "Given the significant rainfall in the region, high water conditions are expected for several days." (<http://www.duke-energy.com/lakes/levels.asp>)

I am not an engineer but our outside expert put it plainly this evening when he said he has never encountered lake levels like this and ground saturation of this magnitude. It is clear that there is significant water pressure in the ground and bodies of water, forcing rainfall into places where it typically would not go. At a minimum, that is what has changed.

We will continue our assessment with the increased resources we have applied to the situation and I will report back to you tomorrow as more information is available.

And know that we remain committed to zero SSOs regardless of rainfall.

Thank you.

Tom

From: Tom G. Oakley
Sent: Friday, May 10, 2013 8:11 PM
To: Tom G. Oakley
Cc: Harry L. Mathis; Henry White; William E. (Bill) Sims; Renee H. Baker; Paul Wise; Glenn Trofatter; Brian J. Wisnewski; 'georgesheppard@comporium.net'; 'Hipp, Dawn'; 'wmorgan@regstaff.sc.gov'; 'CFunderburk@tegacaysc.gov'; 'Harrington, Gregory C.'; ccampbe@regstaff.sc.gov
Subject: Update

Dear Tega Cay Residents,

I want to begin this update with a 'thank you'. Our onsite project manager just reported to us that our folks have indicated that all of their interactions with homeowners have been 'supportive and pleasant'. We really appreciate that very much because we have a lot of good people working very, very hard to identify solutions in your community. They are going 'above and beyond' in that effort and a kind word goes a long way.

Substantial progress has been made in the last three days and we are confident that more will come in short order. While the assessment is not yet complete, there are some things we know.

- First, the work that was previously completed on the collection system (pipes, lift stations, connections, etc. away from the treatment plants) has been successful at greatly improving flows and eliminating blockages (e.g., from root intrusion) and thereby reducing the likelihood of spills at those locations. That is precisely what we intended with those capital expenditures.
- The most recent rounds of smoke-testing have confirmed that the extraordinary rain fall events and maximum lake levels caused the infiltration and inflow to occur in areas of the system not previously identified as potential problems within the collection system. And initial calculations of the quantities from multiple sources are substantial.
- It has been determined that sewer system manholes have been a major point of entry for surface water. Our crews have found in some of the ravines and other areas, manholes that have had the covers removed or replaced with grated covers used in storm sewer systems. It is almost assured that the removals and replacements were done with the intent, not malicious, of diverting water away from homes by sending it to the sanitary system. Obviously this creates both significant system performance problems and more importantly, safety issues. PLEASE let us know immediately if you ever see an open manhole or a manhole that has been altered to allow for storm water runoff by calling our customer service line at 1-800-272-1919.

- The smoke testing has revealed some other sources of infiltration that require further investigation. We are cooperating with the City to more fully understand the sources and causes of this infiltration but again, the calculated estimates of the flows are not negligible in rain events and when coupled with the other inflows, are problem causers.

Our plan moving forward will focus primarily on the areas identified as potential problems and will include, but not be limited to the following:

- Work will continue in some areas over the weekend with two video crews scoping additional footage and re-evaluating some areas based on new infiltration information.
- We have ordered four Hach 'Flo Dar' radar flow measurement units. They provide real time flow rate and volume information for use both in testing and in ongoing measurement via constant monitoring and reporting by modem link to the web for our evaluation. These will be in place later next week.
- A contract diver with expertise in this area will be evaluating the outflow pipe from our treatment facilities to identify any potential problems handling the flow from the treatment plant.
- The scheduling of repairs and meetings have been arranged with multiple contractors to discuss possible ways to further 'tighten' the system against inflows given the age of the clay pipes in the ground. Just as we have improved the bulk of the collection system, other areas of the system may be candidates for similar work to block water infiltration from saturated soils.

On a final note for this evening, I have received multiple requests for an explanation of how we generated the list of people receiving these status communications. Our goal was to get the communication in the hands of anyone with concerns about the situation in Tega Cay. We compiled every possible source of emails and included:

- a) people who have registered their emails with us directly to receive information from us about the business,
- b) emails obtained through the Public Utility Commission website related to dockets for Tega Cay and
- c) email addresses openly displayed in the 'cc list' of messages sent by the Tega Cay Water Citizen Advisory Council that included members of the press and public officials and individuals who may have forwarded those emails to us.

Again, thank you very much for your support and understanding of our team members in your neighborhoods. I plan to issue another report either Monday or Tuesday, depending on what we learn in the interim. Should I receive information that warrants an update over the weekend, I will communicate again with you.

Regards,

Tom

From: Tom G. Oakley
Sent: Monday, May 13, 2013 7:27 PM
To: Tom G. Oakley
Cc: 'Harry L. Mathis'; 'Henry White'; 'William E. (Bill) Sims'; 'Renee H. Baker'; 'Paul Wise'; 'Glenn Trofatter'; 'Brian J. Wisnewski'; 'georgesheppard@comporium.net'; 'Hipp, Dawn'; 'wmorgan@regstaff.sc.gov'; 'CFunderburk@tegacaysc.gov'; 'Harrington, Gregory C.'; 'ccampbe@regstaff.sc.gov'
Subject: URGENT! Tega Cay - man hole cover
Importance: High

Dear Tega Cay Residents,

I was just made aware of the photo below that was posted on the TCWS No Rate Increase Facebook page this afternoon with a description that it was taken this morning. As I indicated to you, last week we inspected every manhole in our system and this one has been tagged with pink paint indicating it was included in the inspection. That inspection involves popping the cover, doing the inspection, replacing the cover and painting. We never leave a manhole open during testing or video inspection without securing the area but how this cover came to be off its ring is an issue another.

The issue is safety! Because it is impossible to identify the location from the picture I am imploring anyone with any information on its location to PLEASE reply to me with the location details so that we can dispatch someone to rectify it.

In my update on Friday, I asked that people, *“PLEASE let us know immediately if you ever see an open manhole or a manhole that has been altered to allow for storm water runoff by calling our customer service line at 1-800-272-1919”*.

I will add to that a request that the contact happen prior to a social media posting (or at least at the same time) out of concern for the safety of residents and our employees.

Thank you,

Tom



554251800.86604.423814484320717&type=1&relevant_count=1

From: Tom G. Oakley
Sent: Tuesday, May 14, 2013 7:25 PM
To: Tom G. Oakley
Cc: 'Harry L. Mathis'; 'Henry White'; 'William E. (Bill) Sims'; 'Renee H. Baker'; 'Paul Wise'; 'Glenn Trofatter'; 'Brian J. Wisnewski'; 'georgesheppard@comporium.net'; 'Hipp, Dawn'; 'wmorgan@regstaff.sc.gov'; 'CFunderburk@tegacaysc.gov'; 'Harrington, Gregory C.'; 'ccampbe@regstaff.sc.gov'
Subject:

Dear Tega Cay Residents,

As promised, please find below a quick update on news and activity in your neighborhoods being performed by TCWS and our contractors.

- First, DHEC today approved the removal of the “No Swimming” signs based on their review of water testing data over the last several days insuring that the lake is safe for use.
- You have no doubt observed the continuing presence of our people and our contractors actively evaluating and data gathering in the field. We are executing our plan as outlined earlier and are beginning to pull together conclusions which will be reviewed with the appropriate government entities soon.
- We have, with the City’s permission, begun excavation at several locations on or near the golf course to further evaluate our collection system in that vicinity. More excavation will be taking place tomorrow.
- Video evaluation, smoke testing and dye testing continue as we close out our investigation into the role of infiltration as a cause of the SSOs.
- You will, or have, received a ‘voice reach’ regarding the presence of divers in the lake beginning tomorrow at 8:30 a.m. They will be evaluating the outlet pipes from our two treatment facilities to determine what, if any, role they may play in the recent spills. They will be using a harmless dye in the testing procedures.

We understand the continued frustration with the situation and would ask for your patience until we have fully completed our assessment of the most recent incidents. Our team is working hard to be certain that we have left no stone unturned in this investigation so that when it is complete, we will be in a position to provide you with a thorough and detailed report on the causes of the recent SSOs and what we are doing to fix them.

Thank you,

Tom

From: Tom G. Oakley

Sent: Wednesday, May 22, 2013 10:08 PM

To: Tom G. Oakley

Cc: 'georgesheppard@comporium.net'; 'Hipp, Dawn'; 'wmorgan@regstaff.sc.gov'; 'CFunderburk@tegacaysc.gov'; 'ccampbe@regstaff.sc.gov'

Subject: Update

Dear Tega Cay Customers,

It has been a week since I last sent you an update so I wanted to provide you a brief one now.

Last week we largely completed an updated assessment of our wastewater collection system. This built on the work that we have been doing the last several years. We were able to confirm that the prior work was acting as intended; however, given the continually evolving nature of inflow and infiltration we found things that needed improvement and that work has already been done or is in process. We know at this point that the largest volume of water in spills this year came from specific sources of inflow during rain events (e.g., open, grated and vented manholes).

We are still finalizing some details and will be issuing a high level summary to you no later than next week with a more detailed report to the applicable regulatory agencies shortly thereafter.

Regards,

Tom

From: Tom G. Oakley
Sent: Sunday, June 02, 2013 9:38 AM
To: Tom G. Oakley
Cc: 'georgesheppard@comporium.net'; 'Hipp, Dawn'; 'wmorgan@regstaff.sc.gov'; 'CFunderburk@tegacaysc.gov'; 'ccampbe@regstaff.sc.gov'
Subject: Tega Cay Update

Dear TCWS customers,

Please find attached a summary of the TCWS sanitary sewer system rehabilitation project to date.

Regards,

Tom

Tega Cay Water Services, Inc.

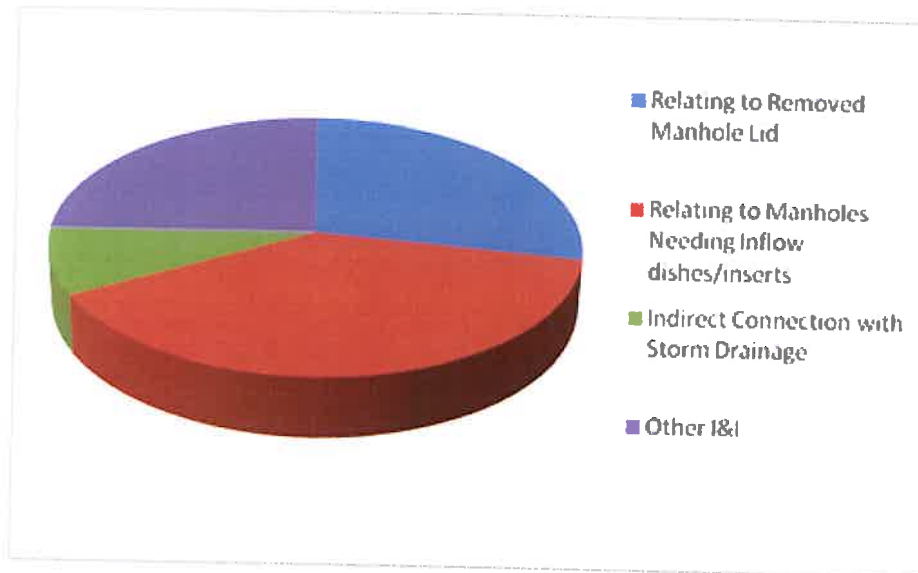
Sanitary Sewer Rehabilitation Project Update

I. Summary

Despite continued and ongoing work in the Tega Cay Water Service, Inc. (TCWS) wastewater collection system in the last several years, TCWS continues to have minor spills and most recently experienced significant spills that reached Lake Wylie. TCWS is 100% committed to having zero preventable spills and providing the community the confidence it deserves that it can enjoy its pristine waters.

The work done in prior years greatly improved the system and has prevented the vast majority of infiltration. However, it has been determined a series of new events caused the system to exceed its capacity and overflow:

- Combination of significant rainfalls, resultant ground saturation and high lake levels.
- New sources of inflow into the system (including open manholes, converted manholes to storm drains, low lying vented manholes and from a failed city storm drain pipe that washed into our broken lateral).



We have made, and continue to make, improvements to prevent those sources from causing problems again. We expect the final punch list of items to be complete by the middle of June; however, the significant sources of inflow have already been repaired and we are confident they will prevent any future overflows.

II. History

Over the past several years, TCWS has committed its resources to stop all preventable Sanitary Sewer Overflows (SSOs). These resources include consulting engineers, internal and external technical expertise, and funding to upgrade, improve and maintain its collection system. The work associated with the 2011 Action Plan with DHEC achieved good results with improved flows to the WWTP and dramatic reduction in lift-station and manhole Sanitary Sewer Overflows (SSOs). Following root and grease removal, lift station renovations, and pipe improvements the number of SSOs decreased significantly from prior years. No wastewater overflows reached Lake Wylie during this 18-month period.

III. Inflow Issues Develop in 2013

In early 2013, the collection system flows associated with rainstorms reacted differently than in the past. The flow rates increased swiftly and more intensely at the plant, which is an indication of large inflow volumes entering the collection. The intensity of these recent events is also evidenced by the fact that many other wastewater systems in the area had overflows related to the conditions produced by these storms. TCWS completed a comprehensive assessment following these rain events and found multiple sources of inflow and infiltration (I&I). Table 1 shown below contains the engineer's estimate of I&I identified by TCWS personnel, camera and smoking testing crews.

Table 1 - Estimated I&I by Rain Event

Issues Contributing to I&I Identified To Date	Storm Events ¹		
	January (Gallons)	April (Gallons)	May (Gallons)
Relating to Manhole Found with Storm Grate Lid ²	70,000		
Relating to Removed Manhole Lid		100,000	100,000
Relating to Manholes Needing Inflow dishes/inserts	135,000	140,000	140,000
Indirect Connection with Storm Drainage	25,000	30,000	30,000
Remaining I&I	<u>260,000</u>	<u>109,000</u>	<u>90,000</u>
Total I&I	490,000	379,000	360,000

¹ Storm events varied in intensity resulting in different I&I totals included in the total volumes through the plant

² MH water seal insert dish installed march 2013

The investigation determined that significant inflows of storm water via open and grated manholes coupled with infiltration from damaged City storm water pipes and rain-induced infiltration led to significant overflows occurring at the plant site. The most recent storm event on May 6, 2013 resulted in five reportable overflows with the most significant at 50,000 gallons occurring at WWTP #2. Following this storm, TCWS completed its assessment that enabled TCWS to determine both the cause and contributing volumes of inflow account for the overflow event.

IV. Overflow Potential Significantly Reduced

Collectively, the work performed in 2011/2012 and the more recent efforts to identify and stop the significant inflow volumes have significantly reduced the potential for SSOs. This two-part process consisted of separate and distinct assessments and system improvements. Table 2 summarizes these activities:

Table 2 – Project Categories of Activities

2011 -2012	- Sewer testing, inspection, cleaning (primarily grease and roots)
Consent Order 11-004-W Action	- Main and manhole rehabilitation and improvements
Plan Activities	- Treatment plant upgrades for Phosphorous removal
2013	- Smoke/Dye testing, CCTV inspection, inflow assessments
Assessment of Inflow and Rain-	- Focus on inflow into collection system
induced Overflows at the Plant	- System upgrades incl. CIPP lining, main/lateral/MH lid replacment

TCWS has installed real-time flow recorders in strategic locations in its collection system to monitor rain events over the next several months to confirm the reduction of inflow. This monitoring equipment will also provide advance warning of any elevated flows in the system that will allow TCWS to take proactive measures to manage the flows thus further preventing the possibility of future SSOs.

EXHIBIT RJD – 3

(Photographs)



The SWAT team gathered on
May 8, 2013



Smoke Testing



Flow meters were installed in the collection lines



Vented Manhole covers are a source of I&I



Vented Manhole covers are a
source of I&I



Manhole cover found with lid
removed



Installation Process for CIPP
(Pipe Liner)



Equipment Used to Install and
Cure CIPP